

SITAO HUANG

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EDUCATION

- 05/2014 – present **Ph.D. candidate** in Electrical and Computer Engineering, University of Illinois at Urbana Champaign. **M. S.** in Electrical and Computer Engineering, University of Illinois at Urbana Champaign. Supervised by Prof. Deming Chen and Prof. Wen-mei W. Hwu.
- 08/2010 – 06/2014 **B. S.** in Electronic and Information Science, Tsinghua University.

INTERNSHIPS

- 05/2018 – 08/2018 **Microsoft Research** – AI Infrastructures *Sunnyvale, California, USA*
- 05/2017 – 08/2017 **Microsoft Research** – Deep Learning Group *Redmond, Washington, USA*
- 05/2016 – 08/2016 **Synopsys** – ZeBu Team, Verification Group *Mountain View, California, USA*
- 12/2013 – 05/2014 **Microsoft Research Asia** – System Algorithm Group *Beijing, China*

PUBLICATIONS

- Seung Won Min, **Sitao Huang**, Mohamed Aly, Jinjun Xiong, Deming Chen and Wen-mei Hwu. Analysis and Optimization of I/O Cache Coherency Strategies for SoC-FPGA Device. (*FPL 2019, to appear*).
- Cong Hao, Xianfan Zhang, Yuhong Li, **Sitao Huang**, Jinjun Xiong, Kyle Rupnow, Wen-mei Hwu, Deming Chen. FPGA/DNN Co-Design: An Efficient Design Methodology for IoT Intelligence on the Edge. (*DAC 2019, to appear*).
- **Sitao Huang**, Li-Wen Chang, Izzat El Hajj, Simon Garcia de Gonzalo, Juan Gómez Luna, Sai Rahul Chalamalasetti, Mohamed El-Hadedy, Dejan Milojicic, Onur Mutlu, Deming Chen, and Wen-mei Hwu. Analysis and Modeling of Collaborative Execution Strategies for Heterogeneous CPU-FPGA Architectures. (*ICPE 2019*).
- Simon Garcia De Gonzalo, **Sitao Huang**, Juan Gómez-Luna, Simon Hammond, Onur Mutlu, Wen-mei Hwu. Automatic Generation of Warp-Level Primitives and Atomic Operations for Fast-Portable GPU Reductions. (*CGO 2019*).
- **Sitao Huang**, Mohamed El-Hadedy, Cong Hao, Qin Li, Vikram S. Mailthody, Ketan Date, Jinjun Xiong, Deming Chen, Rakesh Nagi, Wen-mei Hwu. Triangle Counting and Truss Decomposition using FPGA. (*HPEC 2018*) (**Graph Challenge Student Innovation Award**).
- Joao Ambrosi, Rodrigo Antunes, Aayush Ankit, Sai Rahul Chalamalasetti, Soumitra Chatterjee, Izzat El Hajj, Guilherme Fachini, Paolo Faraboschi, Martin Foltin, **Sitao Huang**, Wen-mei Hwu, et al (alphabetical order). Hardware-Software Co-Design for an Analog-Digital Accelerator for Machine Learning. (*ICRC 2018*).
- Po-Sen Huang, Chong Wang, **Sitao Huang**, Dengyong Zhou, Li Deng. Towards Neural Phrase-based Machine Translation. (*ICLR 2018*).
- Li-Wen Chang, Juan Gómez Luna, Izzat El Hajj, **Sitao Huang**, Deming Chen and Wen-Mei Hwu. Collaborative Computing for Heterogeneous Integrated Systems. (*ICPE 2017*).
- **Sitao Huang**, Gowthami Jayashri Manikandan, Anand Ramachandran, Kyle Rupnow, Wen-Mei Hwu, Deming Chen. Hardware Acceleration of the Pair-HMM Algorithm for DNA Variant Calling. (*FPGA 2017*).
- Yuliang Sun, Zilong Wang, **Sitao Huang**, Lanjun Wang, Yu Wang, Rong Luo, and Huazhong Yang. Accelerating Frequent Item Counting with FPGA. (*FPGA 2014*).
- **Sitao Huang**, Guohao Dai, Yuliang Sun, Zilong Wang, Yu Wang and Huazhong Yang. DTW-Based Subsequence Similarity Search on AMD Heterogeneous Computing Platform. (*HPCC 2013*).
- Zilong Wang, **Sitao Huang**, Lanjun Wang, Hao Li, Yu Wang and Huazhong Yang. Accelerating Subsequence Similarity Search Based on Dynamic Time Warping Distance with FPGA. (*FPGA 2013*).

SELECTED RESEARCH PROJECTS

- **Real-Time DNN-based Object Detection on Embedded FPGA and GPU Platforms**

ES-CAD Research Group and IMPACT Research Group, ECE, UIUC

Nov., 2017 – June, 2018

- **Accelerating Neural Phrase-based Machine Translation on Multi-GPUs**
Microsoft Research, Redmond, Washington, USA *May., 2017 – Aug., 2017*
- Achieve effective acceleration over GPU-enabled Torch implementation.
- **Tangram: A High-Level Language for Heterogeneous Computing**
IMPACT Research Group, ECE, UIUC *Feb., 2017 – present*
- **Collaborative Computing on CPU-FPGA and CPU-GPU Platforms**
IMPACT Research Group and ES-CAD Research Group, ECE, UIUC *Nov., 2016 – present*
- **Pipeline Optimization in High Level Synthesis Targeting Low-Power Design**
ES-CAD Research Group and IMPACT Research Group, ECE, UIUC *Jan., 2016 – May, 2016*
- **Hardware Acceleration of the Pair-HMM algorithm for DNA Variant Calling**
ES-CAD Research Group and IMPACT Research Group, ECE, UIUC *Nov., 2015 – Sept., 2016*
- **Clock Tree Optimization for FPGA-Based Emulation System**
Synopsys Inc., Mountain View, California, USA *May, 2016 – Aug., 2016*
- **Thread Scheduling and Power Management Related Optimization in Multi-Core Systems**
System Algorithm Group, Microsoft Research Asia, Beijing, China *Dec., 2013 – May, 2014*
- Intern, mentored by Dr. Thomas Moscibroda.
- **System-Level Design Space Exploration Automation for Subsequence Similarity Search**
VAST Lab, Computer Science Department, UCLA *Jul., 2013 – Sept., 2013*
- Internship, mentored by Prof. Jason Cong and Dr. Peng Zhang. Automated Design Space Exploration (DSE) flow.
- **Subsequence Similarity Search Acceleration Based on Dynamic Time Warping (DTW) Distance on Heterogeneous Computing Platform**
NICS Lab, Dept. of E.E., Tsinghua University *Jan., 2013 – Jun., 2013*
- **Subsequence Similarity Search Acceleration Based on Dynamic Time Warping Distance with FPGA**
NICS Lab, Dept. of E.E., Tsinghua University and IBM Research China *Jun., 2012 – Oct., 2012*

TEACHING ASSISTANT TO COURSES

- **ECE 527** System-On-Chip Design (Fall 2017, Fall 2018, head TA);
- **ECE 425** Introduction to VLSI Design (Fall 2016);
- **ECE 385** Digital Systems Laboratory (Spring 2017, Spring 2018);
- **ECE 498 ICC** IoT and Cognitive Computing (Spring 2019, head TA).

HONORS AND SERVICES

- UIUC ECE *Sundaram Seshu International Student Fellowship*. 2019.
- IEEE HPEC Graph Challenge 2018 *Student Innovation Award*.
- Design Automation Conference 2018 (DAC 2018) System Design Contest *Third place (out of 61 teams)*.
- UIUC ECE *Rambus Computer Engineering Fellowship*. 2018.
- The 6th International Conference on Learning Representations (ICLR 2018) *Travel Award*.
- *Academic Innovation Scholarship* Winner in the Department of E.E., Tsinghua University, 2013.
- Session Chair in the 15th IEEE Intl. Conf. on High Performance Computing and Communications (IEEE HPCC 2013).
- First prize in the 28th National Competition in Physics for University Students, Non-Physics Major.
- Third prize in the 31st “Challenge Cup” Competition of Science & Technology in Tsinghua University.
- First prize in the 26th Chinese Physics Olympiad (CPhO) in Provinces.

SKILLS

Programming Languages: Proficient in C/C++, Python, CUDA, OpenCL, Java, OCaml, MATLAB, Verilog, etc.

Softwares/Frameworks: LLVM, Quartus II/Prime, Vivado, ModelSim, Visual Studio, LaTeX, etc.